How to Fold the Sonobè Module & some Variations ...

Valley crease left and right edges to the middle line

Valley fold top right and bottom left corners

Valley fold right edge to the middle

Valley fold bottom right corner as shown

Valley fold left edge to the middle

Valley fold top left corner as shown, tucking under flap made in step 3

Completed module

Smooth side

Variations:

Add two valley folds

Add two mountain folds

Dimpled Module:

Begin with variation 2a

Joining 2 Modules:
Begin with module smooth side up

**Regular Models:**
- Coaster/Mat: 2 x E
- Hexahedron: 3 x G
- Coaster/Mat: 4 x B
- Hexahedron: 6 x C
- Cube (c. Sonobè): 6 x E
- Coaster/Mat: 8 x A
- Cube: 12 x B
- Stellated Octahedron: 12 x H
- Cube: 24 x A
- Cuboctahedron: 24 x D
- 12-pointed Star: 24 x I
- Stellated Octahedron: 24 x D
- Stellated Icosahedron: 30 x H
- 24-pointed Star: 48 x I
- 30-pointed Star: 60 x I
- Stellated Icosahedron: 60 x D

**Non-Regular Models:**
- “Squashed” Cube: 3 x E
- “Tesserae Dividenti”: 6 x E
- One-Half Stellated Octahedron (c. Tom Hull): 3 x H
- Stand/Molar: 3 x G
- “Snake”: 10 x G

NB: In general, a model can be made “inside out” by reversing the creases in the module.
The “Snake” - a 24-piece Sonobè module construction

Begin with 10 modules using crease pattern “G” and 14 using crease pattern “H”. A coloring suggestion is to use 7 “H” modules of one color, the other 7 “H”s of a fairly different color, and 10 “G” modules of a color that is somewhere between the colors of the “H” modules.

1. First, join two of the “G” modules as shown, as if you were making the 3-piece hexahedron (aka “Takahama’s Jewel”, as shown in Eric Kenneway’s Paperfolding for Fun, p. 64)

2. Next, take two “H” modules, one of each color, and add them as shown. Note that you will use one flap and one pocket from each of the “H”s, leaving one flap and one pocket from each still available.

3. Next, add one “G” and two “H” modules as shown.

4. Continue by adding one “G” and two “H” modules as shown.
When you reach the end, use the final two "G" modules to complete the model.

Finished!
Sunken Equilateral Module

1. 

2. 

3. 

4. 

5. 

6.  

7. 

8. 

9. 

10. 

11. 

12. 

13. 

14. 

15. 

16. 

Joining Modules

Note: Start with the white side up for models with a different color pattern.

Sunken_Equilateral.xar
Joining Modules

Note: Start with the white side up for models with a different color pattern.
Equilateral Sonobè-Type Module
(inspired by a design by deg farelly)

1. Use a separate sheet to make a template.
2. Slide in second sheet until its raw edge meets the crease in the template.
3. Fold corner to meet raw edge of template.
4. Use paper edge as guide.
5. (a) (b)
6. 
7. 
8. 
9. 
10. Fold corner to meet raw edge of template.
11. 
12. 
13. 
14. 
15. 

Tuck corner inside

Equilateral_df.xar
6-Piece "Hexa Puzzle"

Pieces:  
4 x Hexahedron (aka "Takahama's Jewel")
modules: use 3 x G crease pattern

2 x Squashed Cube
modules: use 3 x E & 3 x I crease patterns

Puzzle #1: Arrange all six pieces to form a larger hexahedron.
Puzzle #2: Use five pieces only to form the same hexahedron

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Other Sources of Information:

Origami Paperfolding for Fun by Eric Kenneway p. 64.
Presents the "Jewel" by Toshie Takahama (uses three modules - referred to elsewhere in this handout as a "three-piece hexahedron").

Origami for the Connoisseur by Kunihiko Kasahara & Toshie Takahama pp. 24, 42 ff
Presents a number of variations on the module, as well as the Sonobe original. Also some nice material on the relation of the module to various polyhedra.

Origami Omnibus by Kunihiko Kasahara p. 209
Presents a simple variation of the module, along with various polyhedron-related material.

Mette Units by Mette Pederson
Self Published by the Author 1996
Presents many interesting variations on the Sonobe theme.

FOCA Convention '86 pp. 4-5
Presents my first attempt to diagram the module and show how they interlock. At the time, I had never heard of Mitsonobu Sonobel

FOCA Convention '91 p. 167
Presents an early version of my "Crease Patterns" document. Again, at the time I still knew the module only as "Toshie's Jewel".

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